

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. C. S. Freeman, Superintendent U. S. Naval Observatory]

[Data furnished by Naval Observatory, in cooperation with Harvard, Yerkes, and Mount Wilson observatories]

Date	Eastern standard civil time	Heliographic		Area ¹	
		Longi- tude	Latitude	Spot	Group
1927					
Aug. 1 (Naval Observatory).....	<i>h. m.</i> 12 0	° -67.0 +0.5 +38.0 +63.5	° -16.5 +13.5 +9.5 -11.0	----- 15 ----- 247	62 ----- 46 -----
Aug. 2 (Naval Observatory).....	11 49	-53.0 -34.0 -7.0 +51.0 +53.5 +78.0	-17.5 -8.0 -17.0 +11.0 +20.5 -10.5	----- ----- ----- ----- ----- 278	93 46 31 62 31 -----
Aug. 3 (Harvard).....	13 23	-39.0 +68.0	-17.0 +21.5	----- -----	319 388
Aug. 4 (Naval Observatory).....	14 26	-26.0 +23.0 +57.0 +83.0	-17.5 -17.0 +11.5 +20.0	----- ----- ----- -----	62 123 31 247
Aug. 5 (Naval Observatory).....	11 52	-13.5 +34.5 +68.0	-17.5 -17.0 +11.5	----- ----- 15	46 154 -----
Aug. 6 (Naval Observatory).....	11 36	-2.5 +22.5 +43.5 +50.5	-18.5 -6.5 -15.0 -17.0	----- ----- ----- -----	15 46 62 77
Aug. 7 (Naval Observatory).....	11 38	+12.0 +37.0 +57.5 +65.0	-18.5 -6.5 -15.0 -17.5	----- ----- ----- -----	15 15 62 93
Aug. 8 (Harvard).....	11 17	+10.5 +72.5	+32.5 -13.5	154 -----	----- -----
Aug. 9 (Naval Observatory).....	12 42	-77.0 -66.5	-13.5 -13.0	104 93	----- -----
Aug. 10 (Naval Observatory).....	11 29	-62.5 -53.0	-13.5 -12.5	----- -----	185 93
Aug. 11 (Naval Observatory).....	11 39	-50.0 -39.5 -33.0	-13.5 -12.0 -11.5	----- ----- -----	123 77 31
Aug. 12 (Naval Observatory).....	11 40	-37.0 -27.5 -21.0	-13.5 -11.5 -10.5	----- ----- -----	93 93 93
Aug. 13 (Naval Observatory).....	11 34	-22.5 -13.0 -8.0	-13.0 -11.0 -10.0	----- ----- -----	46 46 216
Aug. 14 (Harvard).....	12 15	-64.5 -40.0 +7.0	-17.5 -6.5 -9.5	----- 122 -----	267 ----- 872
Aug. 15 (Naval Observatory).....	11 40	-53.5 -21.0 +18.5	-18.5 -7.5 -10.5	----- ----- -----	123 15 648
Aug. 16 (Naval Observatory).....	11 44	-63.0 -67.5 -38.0	+11.0 +10.0 -18.5	----- ----- -----	93 62 247
Aug. 17 (Naval Observatory).....	11 45	+32.0 -85.0 -50.5 -42.5 -24.0 +0.5 +46.0	-11.0 -10.5 +10.5 +10.0 -18.5 -8.0 -11.0	----- 309 ----- 31 ----- ----- -----	741 ----- 31 ----- 154 93 864

¹ Areas are corrected for foreshortening and are expressed in millionths of sun's visible hemisphere.

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard civil time	Heliographic		Area	
		Longi- tude	Latitude	Spot	Group
1927—Continued					
Aug. 19 (Naval Observatory).....	h. m.	°	°		
	11 47	-58.0	-10.5	370	-----
		-25.0	+10.5	12	-----
		-18.0	+10.0	9	-----
		-13.5	+10.5	19	-----
		+5.5	-17.5	93	-----
		+27.5	-8.0		62
		+59.0	-13.0		62
		+72.0	-10.5		926
Aug. 20 (Yerkes).....	9 26	-44.0	-9.0	125	-----
		-5.0	+10.0		150
		+17.0	-14.0	75	-----
Aug. 21 (Naval Observatory).....	11 39	-55.0	+16.5	31	-----
		-31.0	-11.0	247	-----
		+9.0	+10.5		154
Aug. 22 (Yerkes).....	9 50	+32.0	-17.0	108	-----
		-16.0	-9.5	150	-----
		+20.0	+10.0		150
		+44.0	-15.0	50	-----
Aug. 23 (Naval Observatory).....	12 10	-66.0	-18.0		309
		-4.0	-10.5	278	-----
		+36.0	+11.0		370
Aug. 24 (Naval Observatory).....	11 47	+59.0	-17.5	93	-----
		-55.5	-17.5		185
		-52.0	-18.0	216	-----
		+9.5	-10.5	278	-----
		+49.5	+10.5		370
August 25 (Yerkes).....	9 17	+73.0	-17.5	93	-----
		-35.0	-15.5		75
		+20.5	-9.0	100	-----
August 26 (Yerkes).....	9 30	+59.0	+10.5		125
		-27.0	-16.0		300
		+35.0	-9.0	100	-----
August 27 (Yerkes).....	9 9	+80.0	+11.0		125
		-15.0	-15.5		300
August 29 (Naval Observatory).....	11 31	+48.0	-9.0	100	-----
		-79.0	+7.0		31
		-48.0	-18.0		62
		+12.5	-18.0		494
August 30 (Naval Observatory).....	11 41	+77.0	-10.0		216
		-72.0	-14.5	15	-----
		-38.0	-17.0		31
		-34.0	-18.0		46
August 31 (Naval Observatory).....	11 40	+27.0	-17.5		309
		-62.0	-14.5		216
		-24.0	-17.5		93
		+39.0	-17.5		278

CORRECTED MEANS OF SUN SPOTS FOR JULY 22 AND 29, 1927

Date	E. S. T.	Hel. lat.	Hel. long.	Area
July 22 (Yerkes).....	h. m.	°	°	
	18 2	-9.5	-65.0	450
		+21.5	-34.0	100
July 29 (Yerkes).....	10 19	-8.0	+23.5	
		+24.5	+52.5	

AEROLOGICAL OBSERVATIONS

By W. R. STEVENS

The averages for the aerological stations, given in Tables 1 and 2, show some important departures from the normal. Free-air temperatures were below the average at Broken Arrow, Ellendale, Royal Center, and Washington, near normal at Groesbeck, and below normal at Due West near the surface, with positive departures at higher levels. Ordinarily, departures from average, or normal, decrease in magnitude with increasing altitude, but we find the opposite relationship existed for the month at Due West, Ellendale, Royal Center, and Washington. Lowest temperatures of record for August were observed at Broken Arrow from 1,250 to 5,000 meters, from the surface to 1,250 meters at Due West, and from 3,000 to 4,000 meters at Groesbeck. Highest temperatures of record for August were observed at Due West from 1,000 to 3,000 meters.

Free-air relative humidities were mostly below average at Groesbeck, Royal Center, and Washington, and

above average at Broken Arrow, Due West, and Ellendale.

Vapor pressures were mostly below average.

Resultant winds, as determined by kites, show that in general a more northerly component than usual prevailed over all stations with the exception of Due West and Ellendale. Nevertheless, at the latter station temperatures were subnormal by 2° C. or more at all observed levels.

The lowest temperature recorded at the surface during the month at Ellendale was on the 9th in the rear of a HIGH, where the surface wind had shifted to southerly. We find a fall of 4.7° C. from the 8th to the 9th at the surface with a wind shift from NNW. to SSW. At an altitude of 2,000 meters, however, there was a rise of 4.3° C. with a shift from NNW. to W. It is quite obvious that the inversion off the ground on the 9th was not due to a wedgelike advance of cold air, but rather to a rapid increase in temperature aloft.